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Page 2

Application/Control Number: 10/642,519

Art Unit: 2611

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas E. McKiernan on 8/27/2009.

The application has been amended as follows:

Claim 10 rewrite as: A discrimination circuit for a data signal having duty cycle deviation for use in an optical receiver, comprising:

a phase locked loop (PLL) circuit containing a phase comparator circuit for performing a phase comparison between a data signal of bit rate B (bits/s) and a clock signal of B/2 (Hz) at intervals of 2/B (sec);

a duty cycle evaluation circuit for evaluating a duty cycle between input data before and after a point at which said PLL circuit is locked; and

a control circuit for controlling, based on a result of said evaluation, a data discrimination phase before and after the point at which said PLL circuit is locked, wherein:

Art Unit: 2611

said PLL circuit discriminates said input data every other bit by using said clock signal whose frequency is equal to one half the data transmission rate and an inverted version of said clock signal, and achieves a phase lock in accordance with a result obtained by <u>a first</u> exclusive-ORing the data discriminated by a clock signal delayed in phase by one half cycle of said data signal with the data discriminated by said half-frequency clock signal and the data discriminated by the inverted version of said half-frequency clock signal, respectively, and by comparing average values <u>of sums</u> of said respective <u>first</u> exclusive-OR-eums,

said duty cycle evaluation circuit evaluates said duty cycle to determine whether said duty cycle changes from "narrow" to "wide" or from "wide" to "narrow" between said input data before and after the point at which said PLL circuit is locked, said evaluation being made based on a result obtained by <u>a second</u> exclusive-ORing the data discriminated by an inverted version of said clock signal delayed in phase by one half cycle of said data signal with the data discriminated by said half-frequency clock signal and the inverted version of said half-frequency clock signal, respectively, and by comparing average values <u>of sums</u> of said respective <u>second</u> exclusive-OR-eums, and

said control circuit, based on the result of said evaluation, controls the phase of said clock signal delayed in phase by one half cycle of said data signal and the phase of the inverted version of said clock signal respectively in opposite directions.

Art Unit: 2611

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: claims 9, 10 and 8 are allowable over prior art of record. The prior art of record failed to teach a discrimination circuit for a data signal having duty cycle deviation for use in an optical receiver, comprising: a phase locked loop (PLL) circuit containing a phase comparator circuit for performing a phase comparison between a data signal of bit rate B (bits/s) and a clock signal of B/2 (Hz) at intervals of 2/B (sec); a duty cycle evaluation circuit for evaluating a duty cycle between input data before and after a point at which said PLL circuit is locked; and a control circuit for controlling, based on a result of said evaluation. a data discrimination phase before and after the point at which said PLL circuit is locked, wherein: said control circuit includes an initial phase setting circuit in which duty cycle information representing an initial phase adjustment is set; and said initial phase setting circuit compares said duty cycle information representing said initial phase adjustment with an output of said duty cycle evaluation circuit and, when locked in phase in the same condition as said duty cycle information representing said initial phase adjustment, said locked condition is maintained, but when locked in phase in a condition different from said duty cycle information representing said initial phase adjustment, a clock output of a voltage-controlled oscillator in said PLL circuit is inverted as claimed in independent claim 9 and similarly claimed in independent claim 10. Therefore claims 8 - 10 are novel and non-obvious over prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

Art Unit: 2611

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAISON JOSEPH whose telephone number is (571)272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Page 6

Art Unit: 2611

/Chieh M Fan/

Supervisory Patent Examiner, Art Unit 2611